SOIL conservation

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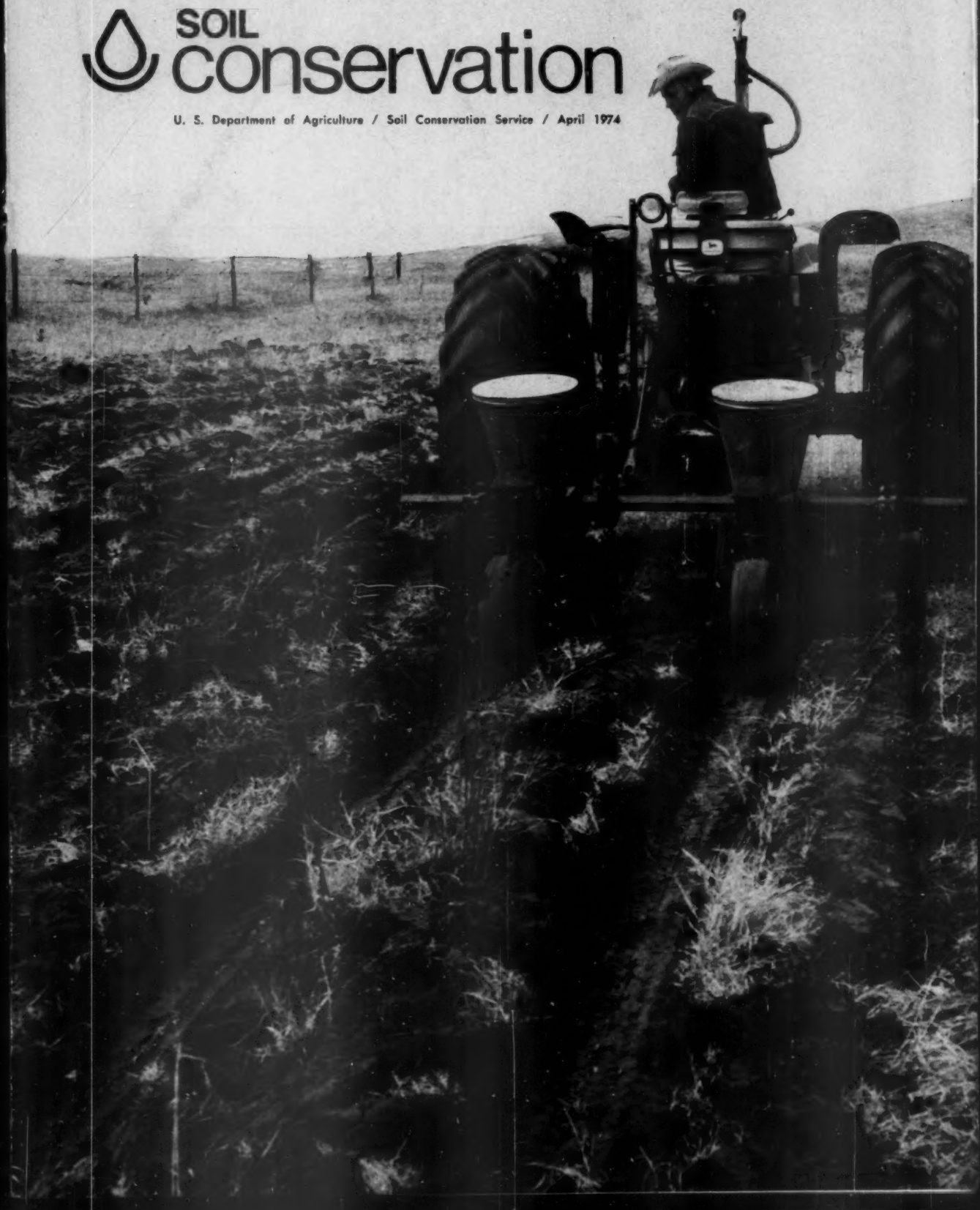

Preserving prime farmland

American farmers may have increased planted acreage of major crops an estimated 5 percent this year, putting more land into crops than they have in 18 years. Some of the acres coming back into production could prove marginal for farming.

Why use marginal farmland? One reason is that demand for agricultural products encourages farmers to plant more acreage. Another is that, in some areas, farmers are being squeezed out of using the better agricultural lands by urban expansion. A third, and related, reason is the high cost of land—farm real estate values rose an average of 21 percent across the country in 1973.

Reconciling competing land uses in the urban-agricultural fringe areas is a difficult problem. The problem becomes more complex because some of the best food and fiber producing areas in the United States are also extremely well suited for urban development.

Growing sufficient food for the nation's needs is a challenging task. We cannot, of course, add up available farm acreage, determine farm production demand, and then assign each crop the acreage it needs. Not all crops grow on all soils. Many crops, including many fruits and vegetables, are often very restricted in their range of adaptation.

For example, red tart cherries grow well only in a limited area. One of the best areas for these cherries is Grand Traverse County, Michigan. But many of the best sites for cherry orchards could also be developed into homesites, roads and shopping centers.

The Soil Conservation Service recently published a Red Tart Cherry Site Inventory for Grand Traverse County. This will provide community planners with an opportunity to recognize the special values of their land. Hopefully, it may help to keep a majority of the better sites for orchards.

There are similar examples of land especially suited to certain crops, from the avocado orchards of southern California to some citrus growing counties of Florida. Land planners should be aware of the fact that when prime or unique crop-growing areas are destroyed or converted, they are generally gone from food production for good. Finding suitable replacement areas may be difficult and costly.

The Secretary of Agriculture, in a statement on land-use policy, has said that the Department will "adapt present programs to help enhance and preserve prime agricultural, range, and forest lands for these uses." We can do this through providing towns, cities, counties, and states with natural resource information and with assistance in implementing desirable land use plans.

The preservation of prime and unique farmlands should be a vital part of present and future land use planning. Both farmers and city and suburban dwellers will benefit. We all eat, and we all need a place to live.

Kenneth E. Grant

SOIL conservation

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Prepared in the Division of Information, Soil Conservation Service, U.S. Department of Agriculture, Washington, D.C. 20250.

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Full Production with Conservation

Excerpts from the speech by Secretary of Agriculture Earl L. Butz *at the 1974 Annual Convention of the National Association of Conservation Districts*

We're in a new ball game in agriculture.

After nearly half a century of chronic surpluses, we now face the need for all-out production.

Our agricultural policy has changed directions. Today we have turned 180 degrees from where we were headed only a few years ago.

For decades, our official farm policy was based on the philosophy of restrictions, of cutbacks, of allotments and quotas.

During those years it was easy to sell a national philosophy of conservation. Conservation farming, grass farming, and retirement of marginal areas into less exploitive uses were popular with the public. With Federal incentives of cost sharing and technical assistance in an era of surplus production, they were also popular with farmers.

The public, Congress, consumers, and foreign buyers of agricultural commodities accepted this philosophy, even when it meant retiring substantial areas of cropland from production, whether on an annual basis or for a longer term. Very few were concerned about inadequate supplies of food, or even about the price of food.

Now the situation has changed.

Food prices make headlines today—both at home and abroad.

A growing number of people, including many politicians, are asking if maybe we have gone overboard in conservation. They look askance at vast acreages which have been set aside for conservation purposes, not only for parks and open space, but sometimes to control agricultural production, often at considerable public expense. These concerned individuals and groups rightly raise the question whether the Federal Government should be involved in programs of this kind. . . .

Let me state categorically that there should be no conflict between full production and sound conservation . . . Every true conservationist, as well as every true economist, knows that sound conservation and full production go hand-in-hand. They are complementary. One serves the other.

We are fortunate in our current need for full production that American farmers have followed good conservation practices in past years. Our agricultural plant is ready to respond fully to the need of the times. It will respond even more fully in the years ahead if we continue to farm with sound conservation as the baseline of our production methods.

This means putting each class of land to its highest use. If land is not suitable for heavy tillage, it should not be put to the plow. You may be able to mine such land, and take a short-term profit. But in the long run, the capacity to produce is dissipated, and our entire national economy is the poorer for it.

For some areas, grass is the highest use, yielding the greatest long-term benefits to the

landowner and to society. For other areas, limited cultivation is indicated. In some areas, contour farming, stripcropping, and rotation planting are the conservation tools required to attain the highest use of farmland. For some areas, the highest use is continuous cropping. And for some areas, it is not cropping at all, but rather forestry or recreation which is the highest use.

We have made studies to watch for possible trouble spots in the months ahead. We have found areas which cause concern. The most serious is in the High Plains area of western Texas and Oklahoma and eastern New Mexico, where unprotected land and a lack of rainfall have combined to cause wind erosion damage to hundreds of thousands of acres this winter. And U.S. Department of Agriculture field offices throughout the country predict that nearly half of the additional cropland being brought back into production in 1974 will be subject to severe erosion from wind and water. This new cropland needs to be protected by adequate conservation measures as quickly as possible.

Our current program to "produce more, protect more" is specifically geared to help farmers and ranchers do just that. USDA agencies and conservation districts are pledged to work together toward this end. It is an effort that is needed not only for this year, but for next year, and for the next generation, and for the one after that. We must encourage and support land use that maintains the quality and the productivity of America's agricultural lands.

The National Association of Conservation Districts and member associations face broad challenges to assume leadership in working for a better informed, enlightened electorate so that wise decisions can be made in land use planning.

You are working with a tremendous reservoir of public concern and good will. The recent PACER national survey shows that 43 percent of the people are afraid that we will have food shortages in 10 years; and 96 percent believe that land should be preserved for food production.

People also think that you can do the conservation job. More than half think that farmers are both more concerned about the environment than the average person and do more about it.

In every state, conservation districts have at their disposal information, inventories, plans, cooperative working relationships, and expertise dealing directly with the natural resources aspects of land use planning.

As subdivisions of state government, with legal responsibilities and authorities, conservation districts are generally in a better position than almost any other public or private group to assist individual farmers and local and state governments in developing and carrying out land use plans. You can help them get and use available soil survey information to assure wise decisions and allocation of land resources.

A concerned public looks to local conservation districts and USDA technicians to help farmers develop plans and install proper erosion control methods as a part of their normal farming operation. Again, consumers are increasingly aware that conservation and production are not incompatible. They go together. . . .

We must urge farmers to use modern soil-protecting tillage practices, such as minimum tillage or no-till, where possible. This will save fuel, too.

They should be encouraged to protect rangeland from overuse and use pasture management systems tailored to individual farm resources.

They should be encouraged to apply conservation techniques to irrigation practices, making sure that water drawdown will not seriously affect the water table.

They should be encouraged to leave land unsuitable for intensive use in grass or trees.

Farmers in specific areas of concern should be encouraged to tailor their individual farm plans to prevent erosion due to careless land use, such as has occurred in the past. For example, in the southeastern states, where soil is subject to gullying; in the Great Plains, where wind erosion is a constant problem; and in the Palouse region of the Northwest, where rill erosion threatens soil resources—in these regions, Soil Conservation Service field people will be vigilant to recommend farm plans that safeguard against a repeat of earlier tragedies.

America's farmers are the original conservationists. They are our best environmentalists. They are custodians of the gifts of nature. They live close to the soil, and they love it. They live with the seasons—with the air, and water, and the biological processes. They understand and respect them.

Farmers are willing partners with conservation districts and with the Extension Service. They are willing users of techniques and programs that result in the fruitful marriage of production for profit and wise land use for posterity.

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Cane farming represents "the good life" to Louisiana's Sigue family. (Left to right) Roland, Warren, Joseph, Sr., Donald, Joseph, Jr., and Lurry.

A family sticks to the land

Sad to say, it isn't news when five sons leave the family farm for the city.

But this is the story of five sons who stayed on their Louisiana farm and, even more astonishing, found a way to run it without getting in each other's hair.

And conservation has helped them make a success of it.

The five Sigue brothers farm some 2,400 acres in Iberia Parish, about half of it in sugarcane. The family owns 250 acres; the rest is on long-term lease.

The father, Joseph Sigue, who is semiretired, is pleased that his boys decided to follow in his footsteps.

"But cane farming is sure different from when I started in 1918," recalls Joseph. "I was 18 then, and my brother and I farmed 150 acres of cane near here, with two teams of mules. The land was rough and yields ran about 15 tons per acre.

"Today my boys are getting at least twice as much—from 30 to 34 tons per acre."

The Sigues turned in their mules for a tractor in 1941. A combination of hard work and careful management has made their farm a top producer today, with fields tilled and tended by 15 tractors, 3 harvesters, and an assortment of dozers, draglines, loaders, and other equipment.

How do the boys divide the work—and the responsibility?

"I am the overall adminis-

trator since Dad decided to take it easier," reports brother Donald. "Warren takes care of the mechanical work, Lurry and Joseph keep the dozers working and the field action going, and Roland looks after our 70 head of cattle, and drives the bus to our community school. Each of us knows exactly what his duties are, and that keeps arguments to a minimum."

The leased land is scattered in several tracts over the parish.

"The landowners let us make what improvements are necessary, and we pay a percentage of the crop yields," Donald says. "The more productive the land, the better the profits for all of us."

He says that the family's production goal is an average of 35 tons per acre.

"When we reach that magic number, we're going to settle down to 1,100 acres of cane. More acreage means more equipment, labor, and expense. Better yields on fewer acres is the answer to success in cane farming."

The Sigues are top conservation farmers and say this has contributed to good, consistent yields. Joseph Sigue, Sr., was an early cooperator with the Iberia-Vermilion Soil and Water Conservation District. It has been nearly 20 years since he first asked the Soil Conservation Service in New Iberia to help him develop a conservation plan.

"As he and his sons acquired more land, they called on us to look it over and assist in planning conservation practices," according to Dolan Kleinpeter, SCS district conservationist.

The Sigues swear by practices such as water management, land leveling, sugarcane residue management, proper fertilization, and deep-plowing.

"Land leveling and water management help in the planting, harvesting, and working of fields," says Lurry Sigue. "It also helps in proper row direction and eliminating unnecessary split and quarter drains that take up land and serve as seedbeds for Johnsongrass.

"We plow about 18 inches deep before planting cane in early summer. We used to deep-plow in the middle of rows and bed over it. Now we make the beds and run the subsoil plow through the top of the beds. Cane is laid in these modified plowed furrows, and this eliminates one plowing."

The Sigue team say deep-plowing allows cane roots to penetrate the soil better and that moisture soaks through hardpans when they are broken by the plow.

The Sigues credit other factors with helping to keep yields high—among them, better varieties of cane and fertilizers.

"We have a new system of heat treating our planting cane stock that helps keep diseases to a minimum," reports Donald. "Farmers bring their cane to the oven at the local co-op before planting and leave it for 8 hours at about 160 degrees. This just about eliminates ratoon stunting disease and the cane comes up faster and grows off better before frost."

The Sigues recently began another profitable practice. "We now haul harvested cane directly to the mill in our carts instead of unloading it and reloading it onto trucks," says Joseph, Jr. "This saves the labor of several men and a lot of truck expense. Trucks are needed only for long hauls!"

The cattle operation on about 110 acres of their land is mostly for family beef. All six families, a total of 36 people, eat beef from the herd.

"We also have hogs for family pork," says Roland Sigue. "When we run low on beef or pork, we slaughter and divide it into six portions. Warren has the largest family so he gets the most."

Joseph Sigue says it pretty well. "The greatest satisfaction a father can have is for a son to follow in his footsteps. When you have five that do it, it is more than a man deserves." ♦

by Gene Warren
Public information specialist, SCS
Alexandria, Louisiana

Why Natural Areas are Important

by John Humke
Vice President
The Nature Conservancy

A lot of people still think of natural areas as a place where bird watchers and nature nuts go to do their thing on Sunday afternoons. This is true. And, frequently, I'm with them because I'm both a bird watcher and a nature nut. However, natural area preservation is actually undertaken for more important reasons.

In the broadest sense it is an effort to control unplanned, unnecessary, and potentially dangerous landscape destruction. We think of this in terms of "ecosystem preservation."

The ecological components of this world we live in, and particularly the biological species, exist in restricted geographic areas where they have adapted to or have evolved under certain physical conditions. They live in association with other organisms in complex arrangements called ecosystems.

The primary objective of ecosystem preservation is to maintain the full diversity of species that exist in a geographical area and the ecological relationships that exist between them and the rest of their environment.

There are several important reasons for doing this. Each species is a unique biochemical entity containing its own genetic code. That is, each species contains its portion of the diversity of germ plasm available in the world and with each extinction the world is forever a poorer place. Each species plays a role in the maintenance of environmental stability. Science is constantly finding new uses for species ranging from lifesaving drugs to biological pest controls.

Ecosystem preserves are research sites for the discovery of ecological principles essential to the proper management of resources. They form the baselines against which the effects of man on his environment can be measured. When man so drastically alters an environment that it collapses as a livable habitat, it would perhaps be impossible to rehabilitate that environment if scientists could not go back to the original conditions and reconstruct what went wrong.

Another way to think about the importance of preserving ecological diversity is to reflect upon the words of Aldo Leopold to the effect that "the first step to intelligent tinkering is saving all the pieces."

The Nature Conservancy's concern for ecological diversity and the creation of nature preserves goes back over 55 years, to 1917, when the Ecological Society of America created the Committee for the Preservation of Natural Conditions. This committee ultimately became The Nature Conservancy. Its primary objective is natural area preservation. The primary technique for doing this is land acquisition.

During its lifetime the organization has been responsible for the protection of over 1,100 natural areas involving over 600,000 acres. Natural area projects range in size and type from a 230,000-acre desert research site in New Mexico to a ¼-acre salt marsh in Connecticut.

For the first 20 years, the Conservancy put virtually its entire resources into the task of acquiring endangered natural areas, with the idea that full management of these areas would have to wait until the pressure was off. The pressures on land are not lessening and we are a long way from protecting all natural areas worthy of protection.

As we acquired land, we frequently deeded out or leased areas to government agencies, universities, and sister conservation organizations where it was the best way to get good management. However, The Nature Conservancy also kept many areas, to the point where we presently hold direct management responsibility for over

Devil's Den, Connecticut. The dam was damaged.

Patagonia-Sonoita Creek, Arizona. For the birds.

450 areas around the country.

Back in late 1970 some conversations between our office, the Soil Conservation Service, and the National Association of Conservation Districts led to a pilot experiment in cooperation on natural area inventory and management planning. In 1972, SCS Administrator Kenneth E. Grant issued Environmental Memorandum-13, "Natural Areas Policy and Procedure," which stated that the Soil Conservation Service would recognize natural areas, when so dedicated, as qualified to receive SCS technical assistance. The SCS memorandum also stated that technical assistance would be furnished to representatives of administering agencies, foundations and groups, and to individuals, when requested through soil conservation districts.

SCS employees would report any potential or actual damages to natural areas they found in the course of their ordinary business.

SCS would cooperate with interested societies, groups, or individuals in locating suitable natural areas.

SCS plant scientists and others might become involved in providing technical assistance on some natural areas due to their special nature or purpose.

When providing land operators with regular technical assistance, SCS people would also inform them of any impact their decisions may have on nearby natural areas.

With this environmental memorandum as the key, we worked further with SCS and the National Association of Conservation Districts in developing a program. A brief description of assistance available from SCS through conservation districts was sent to our people'

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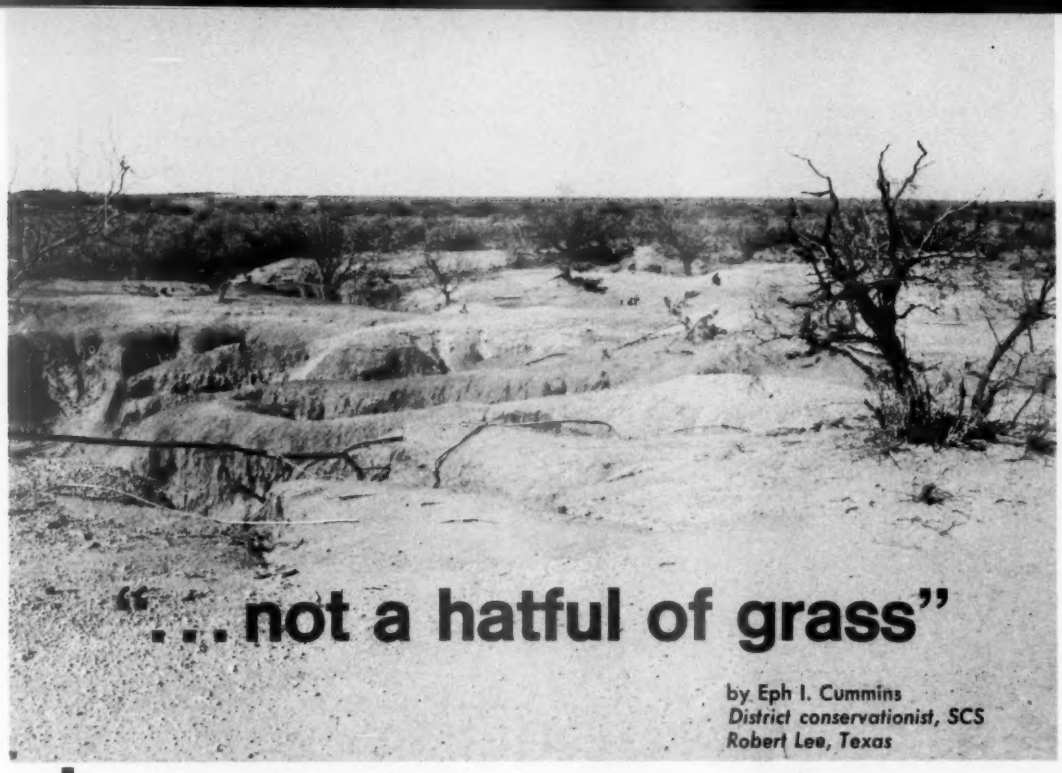


"... not a hatful of grass"

by Eph I. Cummins
District conservationist, SCS
Robert Lee, Texas

If there was ever a test of range reclamation, it was the 80 acres of eroded gullies on the 660-acre Mary Jane Adams ranch southeast of Robert Lee, Texas, not far from San Angelo.

The topsoil was gone and the area was contributing lots of sediment to streams and lakes. There was little forage; about the only things growing were mesquite and tasajillo.

As one observer remarked, "There's not a hatful of grass on the whole 80 acres."

Then Bob and Mary Jane Adams asked the Coke County Soil and Water Conservation District to help them develop a plan for their ranch. SCS specialists worked with them in analyzing their goals and in figuring out alternatives, using the soil survey as a guide. An inventory of forage production enabled the couple to compare current forage production with the production potential of various sites on the ranch. The inventory showed that improvement of vegetative cover was needed over most of the ranch, along with mesquite control. But the toughest single problem was the 80-acre tract of gullied land.

Restoration began in 1970. Dozers were used to fill the gullies and flatten the slopes to reduce the hazard of erosion. A seedbed was prepared by rootplowing. This broke up the tight and compacted soil and enabled rainfall to penetrate the soil.

The seedbed was modified with a roller chopper and seeded to a mixture of sideoats grama, KR bluestem, sand lovegrass, green sprangletop, switchgrass, and indiangrass.

The first seeding was unsuccessful; the summer of 1970 was extremely hot and dry. The land was reseeded in 1971, and the grasses came up and had two full growing seasons of rest. Mary Jane says, "The deferments gave the grass plants a chance to become established and produce a seed crop."

Species such as sideoats grama, green sprangletop, indiangrass, and sand lovegrass are growing from knee to waist-high, producing excellent forage for livestock. The soil is being kept productive and stable. Erosion is being controlled and the water resources downstream have less pollution from siltation and sediment.

J. L. Brunson, who has known the place for many years, says, "The grass production on the ranch has increased four to five times since the program was started 3 years ago."

Sixty cows were run on the ranch in the winter of 1972-73. It has been rested during the 1973 growing season. Mary Jane said, "Prior to doing the conservation work, I could have run from 10 to 15 cows on the whole place."

The steeper and shallower land was left in brush as hab-

itat for wildlife. Some of the seeded grasses furnish food and cover for deer, quail, and dove.

A planned grazing system on the several pastures will help in grassland and livestock management. During times of drought and low forage production, livestock will be reduced in order to keep grazing pressure in balance with grass production. ♦

Severe erosion has removed topsoil and all vegetative cover on picture at left. (Right) Mary Jane Adams examines indiangrass seedheads in an excellent stand of grass. Other grasses are sideoats grama, green sprangletop, KR bluestem and blue panic.

Conservation goes to college

by Lynn Betts
Information specialist, SCS
Des Moines, Iowa

Outdoor classrooms are for kids, right? Not quite, say a number of Iowa colleges which have developed outdoor learning centers on their campuses. They feel it's important to provide this kind of education at higher levels as well.

One of the most extensively developed outdoor learning centers is at North Iowa Area Community College (NIACC). It covers 135 acres of the college's 310-acre campus just outside Mason City.

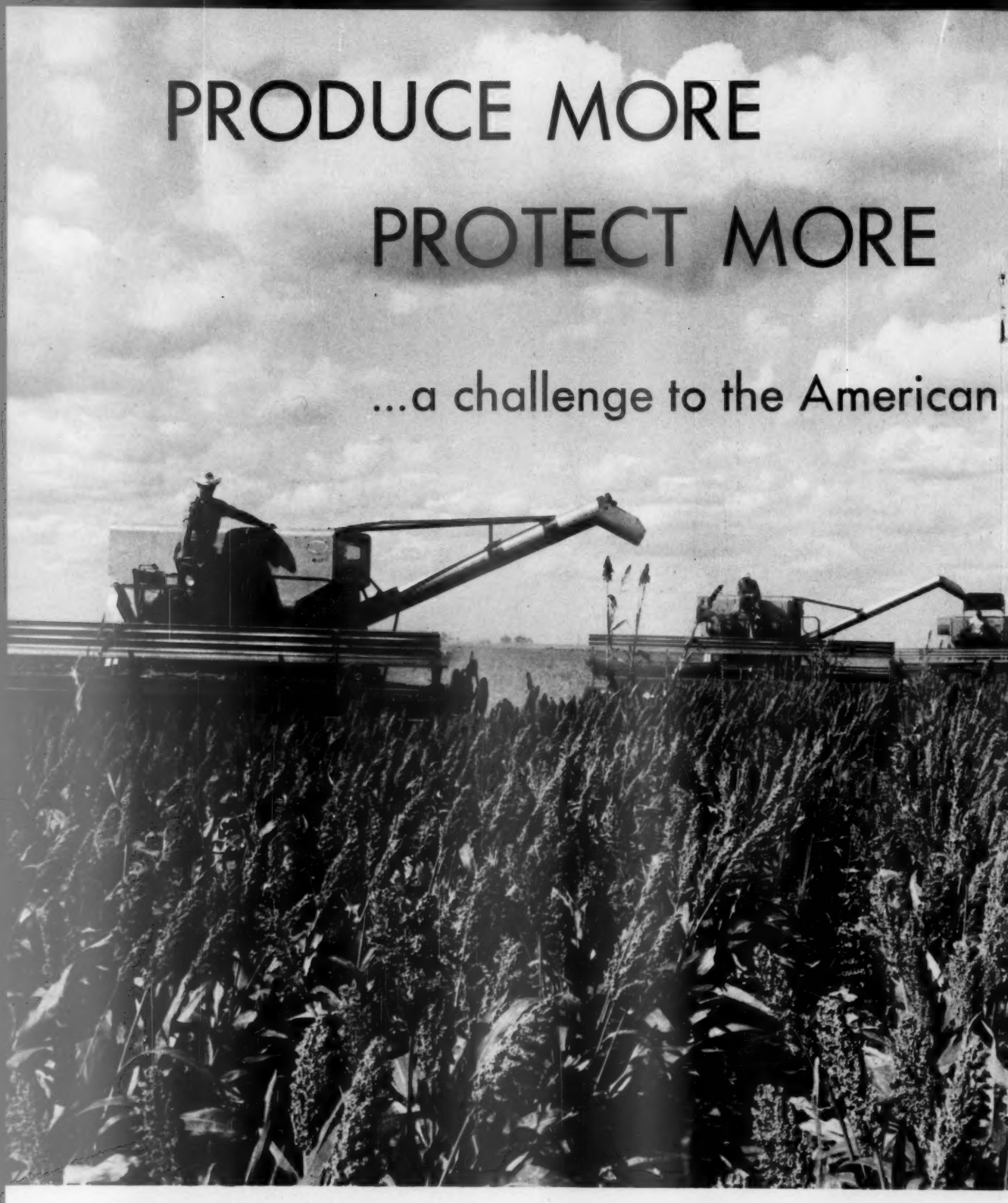
Heaviest use of the area by NIACC's 1,500 students has been for classes in biology, agriculture, business, and art. The classroom also is open to grade school students and community groups.

North Iowa's outdoor learning site was started 4 years ago when Larry Heaton, district conservationist with the Soil Conservation Service, suggested the idea to Dean Nerdig, NIACC agricultural business instructor. A conservation plan was subsequently developed that included a pond, a grassed waterway, nearly a mile of parallel tile-outlet terraces, and diversion terraces for agricultural and water quality studies.

Students studying farm operations practice good resource management on the 68 acres of cropland. They stripcrop fields, use conservation tillage on row crops, and seed terrace backslopes with various grasses to demonstrate the capabilities for erosion control and beautification.

A 22-acre grassland area on the site will not be disturbed, except for a few shrub and tree clump plantings. The area is used to study ground-burrowing animals, ground-nesting birds, and other types of wildlife. A 1-acre pond, used for aquatic studies, has been stocked with fingerling bass and catfish.

In addition, a field windbreak was planted last spring, a 12-acre wildlife area has been developed, and a 13-acre woodland area has been set up for woodland management studies. ♦


PRODUCE MORE
PROTECT MORE
...a challenge to the American

THE AMERICAN MAINLAND

stretches 3,000 miles wide, 1,500 miles north and south. On a very significant amount of this land, farmers and ranchers are:

—Producing more wheat, corn, grain sorghum and other agricultural products needed in 1974, and

—Protecting more land to keep it fertile for the next year—and the next generation.

As millions of acres of "new" land go into crop production; and as present cropland receives intensified use, production with protection becomes more important than ever.

The farmer has a responsibility to use his soil wisely—and he knows it. Soil Conservation Service people stand ready with technical help. They make these recommendations:

Farm land under a conservation plan.

Plant the right crops in the right soil.

Use effective soil and water conservation techniques, including minimum or no tillage where possible.

Keep steep land or other areas highly susceptible to erosion covered by grass or trees.

Locally-based SCS men help farmers to tailor these general recommendations into specific conservation plans. The nation's economy and ecology—and its people—all benefit.

RC&D goes underground

Flagstone industry thrives again

by Jerome C. Hytry
Assistant state conservationist, SCS
Somerset, New Jersey

Bluestone quarry on the Wildred Smith farm.

Hidden in the rural farmland of northeastern Pennsylvania, a productive and interesting natural resource industry had almost faded into history. Now, thanks to an organized grassroots movement, it's a thriving business again and the second biggest money earner in the area.

Deposits of bluestone were found about 100 years ago in Susquehanna County near the northern border of Pennsylvania. Over 300 million years old, they had been pressured into flat, even layers. Farmers plowing their fields uncovered the deposits and found the flagstone easy to quarry and use for sidewalks and curbstones. Susquehanna County alone once boasted over 300 quarries, employing more than 1,500 men.

As years passed, the demand for the flagstone declined and less expensive materials took over the market. By 1965, only 75 quarries employing less than 250 men were operating.

Today, the once-doomed industry has a bright future. The turnabout began with a program of the Endless Mountains Resource Conservation and Development Project. This locally initiated and sponsored project, covering five northeast Pennsylvania counties, is assisted by agencies of the U.S. Department of Agriculture under the leadership of the Soil Conservation Service. Local people plan the project work, set priorities, and receive financial and technical aid from various federal and state agencies.

HOW THEY DID IT

Reviving the flagstone industry seemed like a futile effort when RC&D project sponsors began in 1968. One unsuccessful attempt by another group

had already been made in 1963. But Carlton Birchard, an RC&D executive council member, had been a quarryman, and his viewpoint was "nothing ventured, nothing gained."

Birchard, Robert Shaw, and other quarry owners discovered they had a number of common problems.

First, each quarryman operated independently. He did his own prospecting, quarrying, and marketing.

Second, there was no feasible method of locating flagstone deposits. The quarrymen had little or no idea how much stone was at any location.

Third, there were no standards or specifications for flagstone.

Fourth, there was no advertising or promotion of flagstone. Each quarryman had his own "buyer" or "broker," and the price was negotiable.

Some sort of organization was necessary. With the help of Edward Dieffenbach, Susquehanna County extension agent, the quarrymen formed a self-help committee. In January 1969, this became the Pennsylvania Bluestone Association and things began to happen.

In June 1969, the Bluestone Association entered into a contract with the Small Industries Research of Pennsylvania State University, to proceed with three research projects valued at $26,600. The local share was $2,660 with $23,940 being provided by the university.

The first research project was headed by Stephen Krajewski, a geology instructor from Washington and Jefferson College, Washington, Pennsylvania, and the first aim was to locate new flagstone deposits.

The next concern was to identify the physical and mechanical properties of the flagstone. The third part of the research project involved the marketing, physical distribution, and pricing of the bluestone.

Ken Morrison cuts bluestone with electric diamond studded saw. Morrison is president of the Pennsylvania Bluestone Association.

The researchers learned that bluestone deposits were almost always found under Lordstown soil, which covers about 30 percent of the county. Soils information previously prepared by the Soil Conservation Service made it relatively easy to locate this soil. Thus, depending on the amount of overburden on top of the bluestone, the researchers could pinpoint numerous potential quarry sites.

WORK AND WORKSHOPS

By June 1970, the Bluestone Association had enough information to sponsor two workshops. One covered land leases. The other concentrated on the use of dynamite; one result was that 26 quarrymen received blasting licenses. Interest grew, and so did the quarry industry.

Today, the quarry industry ranks second only to dairy farming in Susquehanna County. More than 100 quarry operators are members of the Bluestone Association and they are cooperating in pricing, marketing, and shipping flagstone.

New markets are being researched and flagstone has even been put into use as a base for area roads. One ingenious couple, Cortland and Mary Birchard of Birchardville, Pa., have built a good business by making a variety of small items from the scrap stone.

Recently, the association and RC&D sponsors convinced state highway officials to use local bluestone in constructing a new interstate highway rest stop in Susquehanna County. Low cost and the available sturdy building material was their winning argument.

Reviving the bluestone quarry industry in Pennsylvania is one of many projects of the Endless Mountains Resource Conservation and Development Project. The quarrymen of Susquehanna County are happy it was one of the first projects considered in their conservation development effort. ♦

Living space for Colorado's elk

by Bob Saile
Sport's editor, Denver Post
Denver, Colorado

In the early 1900's, the first elk arrived in the San Juan Basin of southwestern Colorado via narrow guage railroad. They had been trapped in Yellowstone Park, with sportsmen and Elks Club members footing the bill for their rail fare.

By the late sixties, the Colorado elk herd had grown until it outstripped the winter range available.

Art Gresh, conservation officer for the Colorado Division of Wildlife, stationed at Durango, said, "We were faced with reducing the size of the herd, paying more game-damage claims, or finding new winter range."

The Wildlife Division, with the cooperation of the Soil Conservation Service and other agencies, decided to follow the third course of action. As a starter, it purchased 3,819 acres west of Durango, and some 2,000 more acres of Bureau of Land Management land were established in the past 5 years as the Perins Peak Wildlife Management Area.

A total of $303,050, spent primarily by hunters, was used to acquire the state land. About three-fourths of it was in the form of federal money from taxes on arms and ammunition. The rest was state money from the sale of hunting licenses.

Today as many as 500 elk now winter on the management tract, which also holds deer, bear, and turkey. Had the land not been acquired, it probably would have been purchased by subdivision developers.

The Perins Peak property originally consisted of two ranches. One was purchased for $56 an acre, and the second went for $112.50.

"Today," Gresh reports, "the going price for land being subdivided in the area is $3,800 an acre."

Although the Perins Peak property was valuable enough in its original condition, quite a bit of the land had to be replanted and irrigated because of overgrazing.

The Soil Conservation Service played a key part in the replanting. Gene McGuire, SCS district conservationist, recommended the seeding of wheatgrass, bromegrass, alfalfa, and other plants. Tall oak brush was knocked down with chains to promote sprouting and easier browsing. McGuire designed a system of irrigation ditches.

Colorado State University, Fort Lewis College, and the U.S. Forest Service were active in the reforestation work. Further grazing leases were withheld from the BLM section of the management area.

The Division of Wildlife is currently seeking more winter range for the tract. Gresh says that several large ranchers have said they would rather sell to the state than to developers—even for less money—because they want the land preserved for wildlife and the public.

Today hunters take up to 700 head of elk annually out of the herd, about 100 of them from the Perins Peak area. Half of the total state elk harvest comes from the San Juan Basin, according to Gresh. ♦

No beefing over these cattle

Feedlot runoff under control

by Willie Y. Reece
District conservationist, SCS
Lubbock, Texas

Cleaner water for a city recreation project is one benefit of a feedlot pollution abatement system installed near Lubbock, Texas.

The 4,000-head feedlot, owned by Lubbock Christian College as an educational facility, is located 4 miles north of Lubbock. It is upstream from where the city eventually hopes to build an elaborate 1,500-acre Canyon Lakes Recreation Project to serve more than 200,000 people in the South Plains area.

Dr. Elton Cook, chairman of the Agriculture Department at Lubbock Christian College, said the potential for polluting the proposed lakes plus guidelines established by the Texas Water Quality Board were determining factors in building the $10,000 pollution abatement system.

The pollution control system includes two terraces and two holding ponds. One pond covers 1.1 acres and holds 5.24 acre-feet of feedlot waste. The second pond covers 0.8 acre and holds 1.81 acre-feet. The smaller pond drains 4.92 acres; the other drains 13.76 acres which is principally the feedlot itself.

The storage pits are capable of holding a 24-hour rain of 25-year frequency, which in Lubbock amounts to 5.3 inches of water in a 24-hour period—a very heavy rain. Pumping facilities and a sprinkler-irrigation system have been installed to spread the liquid waste on a nearby 100-acre bermudagrass pasture. The system is designed so the pits can be emptied within 2 weeks after they are filled. The water irrigates and fertilizes the pasture with excellent results.

To prevent contamination of underground water by seepage from the pits, the college had a private laboratory check the soils on the site before construction to determine if any could be used as a sealant. The laboratory found that the topsoil would work. It was stockpiled and spread 1 foot deep over the bottom and side slopes after construction.

When the job was finished, the Texas Water Quality Board's District Supervisor, Raymond L. Mittel of Lubbock, praised the college for solving a pollution problem. The Planning Department of the City of Lubbock also commended the college officials for good citizenship. Chairman Cook expressed appreciation to the Soil Conservation Service for technical assistance and to the Agricultural Stabilization and Conservation Service for sharing a portion of the cost. ♦

Runoff water from this Lubbock feedlot is diverted into holding ponds near top left of picture.

Windbreaks for beefsteaks

Cattle have their own energy crisis when winter storms come. But the crisis is lessened if they have windbreak protection. Sheltered by a row of tall trees, they burn up less feed trying to keep warm and spend more time eating and gaining weight.

"On a blustery day, cattle eat more behind the windbreak because they go to the bunks more often," is the way Bob Schmaderer sums it up. Schmaderer feeds 3,000-plus animals in Cuming County, the leading county in Nebraska in number of feedlots.

Some of his lots are beyond the end of his 5-row windbreaks, and he notices the cattle bunch up more out there on the unprotected side. Bunching up to keep warm, they spend less time eating and gain less in the same period.

Leland Olson agrees. "Without a windbreak, cattle get so cold they don't care to eat," Olson says. In 1960 Olson planted an 8-row windbreak on his farm near Oakland to protect the entire farmstead—home, outbuildings, cattle, machinery, and people.

Carlando Anderson, also near Oakland, remembers seeing horses, huddle together in a grove of trees and stay there 2 or 3 days without feed or water. He doesn't want his cattle to do the same thing, so he planted a windbreak for them. Anderson has been feeding cattle since "the day I started working," with and without windbreaks. "I'll choose the windbreak, that's for sure," he says.

Feedlot and farmstead windbreaks pay off in simple, easy to understand terms. The less amount of feed cattle use for heat energy production, the more beef they produce. The more cattle eat during the winter, the more they gain and the sooner they can go to the supermarket.

Cuming County farmers know this. That's why nearly every feedlot in the county is protected by a windbreak. Soil Conservation Service records show 2,065 acres of windbreaks protect the more than 720 feedlots. "Landowners plant about 35 to 40 acres of new windbreaks every year," says SCS District Conservationist Paul Smith. Much of the new planting is supplemental to older windbreaks that have lived out some of their usefulness and need evergreens to fill in.

Five species make up 95 percent of the trees planted. The usual pattern is two or three

by John M. Cross
Information specialist, SCS
Lincoln, Nebraska

District Conservationist Paul Smith examines a row of redcedars.

rows of eastern redcedar next to the north and west winds. Then two or more rows of either ponderosa pine or a mixture of green ash and honeylocust or hackberry.

Leland Olson's pine trees, though only 13 years old, are 18 feet tall. His cedars are 12 feet or more. No matter how bad the storm, he has no trouble with snowdrifts in the farmstead area. Snow between the first two rows of cedar will get as deep as the trees are tall, but little or none of it comes through. Fuel savings, from less snow removal, are important in these days of energy shortages.

Olson also has a row of honeysuckle inside his windbreak, which attracts wildlife. Pheasant and quail make homes there, and the blossoms add beauty and fragrance in the summer.

Bob Schmaderer likes to have pheasant overwinter in his windbreak, but they present one small problem: people shoot into them from the road at times.

Besides warmth and wildlife, windbreaks serve yet another purpose. Because they trap snow, there is less snowmelt in the feedlot, and the lots dry up sooner when the warm south winds sweep through.

But cold south winds are another story. The Andersons say they have to run their thermostat up 5° to maintain comfort in the house during a stormy south wind. When the winds shift back to north or west, where the windbreak does its work, the thermostat can be moved down again.

Windbreak planting in Cuming County follows a system. SCS conservationists assisting the Lower Elkhorn Natural Resources District help landowners plan for windbreaks as a part of conservation and land use planning. Orders for tree seedlings can be placed with SCS or the other agricultural agencies, and the resource district has the planters for hire.

Survival rates have been good, but it takes some doing. Young trees must be kept weed-free for the first 3 years. Olson had his tree rows set to the width of his disk, then hoed between the trees as long as necessary. Anderson bought a riding lawn mower to keep his rows clean. "The trees are worth the trouble," he says.

How much is a windbreak really worth? "You couldn't put a high enough price on it," thinks Leland Olson.

A number of landowners say it's best to leave plenty of room between trees and feedlots. The larger space traps more snow and allows space for doing chores and storing machinery where there's some protection. "Windbreaks make it a lot warmer for me, too," is the way Bob Schmaderer puts it.

April is tree planting time in Nebraska. This year, a lot of people are looking at the comfort, beauty, and energy and moneysaving benefits from farmstead and feedlot windbreaks. ♦

NACD Recreation Inventory

Public demand for outdoor recreation is rapidly growing. Increasingly, this demand will have to be met by the use of privately-owned recreation facilities.

Where are these facilities? And what kinds of recreation do they supply? Information on this is needed by conservation districts, other local units of government, the Soil Conservation Service, the Bureau of Outdoor Recreation (BOR), and other agencies and organizations that help to plan for recreational development. Data on public facilities are already available in most states.

COOPERATIVE AND COMPLETE

In October 1972, the National Association of Conservation Districts' Recreation and Natural Environment Committee proposed that the nation's conservation districts be instrumental in carrying out an inventory of private and semiprivate recreation facilities. After approval by the NACD Board of Directors, the committee met with appropriate BOR and SCS officials to develop preliminary plans. The NACD Board of Directors approved the plans in late 1973 and underwrote the funds required to print coding forms and instructions.

The inventory of private and semiprivate recreation facilities will be made on a county-by-county basis, and aims to achieve 100-percent coverage. The Bureau of Outdoor Recreation will compile the information into computerized national, state, and county summaries by use of an automatic data processing scanner.

The recreation facilities to be inventoried will include campgrounds, field sports areas, fishing waters, golf facilities, historic and archaeological sites, hunting areas, natural and scenic areas, picnic grounds, shooting preserves, snow ski areas, trails, vacation farms and ranches, water sports areas, and facilities used for rodeos, zoos, amusement parks, and outdoor theaters.

The inventory will include information on acreage devoted to recreation facilities, the number of guests, and other measurements of capacity such as the number of holes in a golf course or the number of vehicle and tent sites in a campground.

The energy shortage adds a new urgency to the inventory. With more leisure time—but less gasoline—more people than ever will be seeking recreation near their own home.

Conservation District Association presidents have been asked to provide leadership in conducting the inventory in their states. Representatives of agencies interested in outdoor recreation have been asked to serve as members of their state coordinating committee.

State coordinating committees have the option of adding special recreation facilities important within their state that are not included in the nationwide inventory. However, these facilities will not be included in the ADP scanning forms and thus will not be part of the national summary.—By CHARLES G. PHILLIPS, *Resource Conservation Planning Branch, SCS, Washington, D.C.* ♦

No-Till Stands Tall

"Hundred bushel" corn clubs have been around for a long time. But Moore County, North Carolina, has come up with something new—the "No-till Hundred Bushel Corn Club."

No-till is one method of minimum tillage cultivation, and this relatively new practice is catching on fast. Recently the Moore Soil and Water Conservation District, which has been promoting no-tillage, held a corn banquet to honor farmers using this method.

Of some 300 farmers in the area using no-till, 26 had produced more than 100 bushels to the acre in the fertile soil of Moore County. The top winner, Max Dunlap, came very close to 200 bushels an acre—the actual production was 199.98. Runners-up were Gerald Sanders, with 189.5 bushels and Hobart Hussey with 184.7 bushels.

In no-tillage methods, seed is planted in a very narrow strip—2 to 3 inches wide—leaving the soil largely undisturbed. Crop residues or sod stay between the planted strips. In Moore County, this technique has resulted in an increase of 10 to 15 bushels per acre over conventionally plowed fields. About 3,000 acres were planted by no-till in 1973, and even larger acreage is expected this year.

In addition to corn, farmers in Moore County are "just beginning" to use no-till for soybeans, while some cotton has been planted in a minimum tillage demonstration.—PAUL R. BRITT, *soil conservation technician, SCS, Carthage, North Carolina.* ♦

Elsewhere . . .

A Georgia conservation supervisor employed no-till techniques in 1973 to set what District Conservationist Claude R. Gaines has called a state record of 204.6 bushels of corn per acre. Supervisor Ben Overstreet of the Upper Chattahoochee River District grew the record yield on 13 acres of bottom land along the Etowah River in Dawson County.

Overstreet explained that early in May of 1973 he planted his corn in grass, briars, weeds, and water at the rate of 21,600 stalks per acre—land that most farmers in his area would consider ill prepared for cultivation. Overstreet limed the land, then planted and immediately sprayed the ground with herbicides and nitrogen fertilizer.

During the growing period, some of the area was flooded for several hours when the corn was 6 inches high. Nothing was done to the corn between spraying and harvest.

Overstreet regards no-till as an effective conservation practice that reduces sediment yield and water runoff.

He's "corn-ered" the market! Max Dunlap, the North Carolina winner. Mr. Dunlap's yields have increased every year since 1966, when he began no-tilling.

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Why natural areas are important

and they were encouraged to contact their local conservation districts and SCS representatives.

This was followed by SCS Advisory EVT-24 entitled "Natural Areas Policy and Procedure." This briefly describes The Nature Conservancy, mentions that local representatives of the Conservancy may be asking SCS for assistance, and includes a directory of local Conservancy preserve managers. The advisory encouraged SCS people to inform local Conservancy representatives about conservation district programs and services available in the areas where our preserves are located.

The reason for doing all this was to bring some of the skills and services, developed over the years by the SCS and the conservation districts, to the volunteers and staff that are charged with managing Nature Conservancy preserves. Many of our volunteer managers are dedicated conservationists who have raised money to purchase an area but who have little experience in land management. We are asking these people to prepare fairly sophisticated master plans for each of our preserves and most of them need professional help.

Initially we thought that SCS and district assistance would be in the form of providing basic data such as soil maps, air photos, and hydrological information. However, we have been very happy to discover that they are not only providing this essential data but also assisting in its interpretation and the actual preparation of master plans.

Some of the areas where we've worked with SCS and district people are:

- Yankaur Preserve, W.Va., where we received a soil and vegetative resource inventory.
- Finzel Swamp, Md., where we received information on soils and their capabilities for different uses, as well as geologic and vegetative maps.
- Blowing Rocks Preserve, Fla., on the Atlantic coast, where there was a severe erosion problem. SCS people were of considerable help in advising us on techniques to reduce the damage.
- Devil's Den, Conn., which includes a large, heavily-used nature center. The dam and millrace on an early 19th century millpond were deteriorating, and we asked for—and received—help on improving the pond and the dam.
- Patagonia-Sonoita Creek Sanctuary, Ariz., which is well known as an oasis for southern birds. Unfortunately, the refuge is being threatened by upstream pollution and The Nature Conservancy, district, and SCS people are working to find a solution.
- Merril Lake Sanctuary, Long Island, N.Y., where our local chapter is working with the Suffolk County Soil and Water Conservation District to provide top level management of the area.

We're pleased with early SCS—district—Nature Conservancy work, but we don't feel it's in full swing yet. We have 450 nature preserves to provide for and we're adding a new one every 2–working–days. Our preserve management capability is spread thin and needs help. We will continue to encourage our volunteers to turn to their local conservation districts for assistance in resource management. ♦

Soil surveys

Maryland

Cecil County. By Richard A. Andersen and Earle D. Matthews. *1973. Soil Conservation Service in cooperation with Maryland Agricultural Experiment Station. 119 pp., illus.; maps.*

Worcester County. By Richard L. Hall. *1973. Soil Conservation Service in cooperation with Maryland Agricultural Experiment Station. 78 pp., illus.; maps.*

Secretary Butz

continued from p. 5

Every American should be invited to join this partnership. Together we can assure an adequate flow of food and fiber to meet the needs of a population growing both in numbers and in affluence—in a manner consistent with the prudent husbandry of the resources which make it possible, and which the Lord has entrusted to all of us. ♦

Michigan

Leelanau County. By Hermann L. Weber. *1973. Soil Conservation Service in cooperation with Michigan Agricultural Experiment Station. 90 pp., illus.; maps.*

Minnesota

Steele County. By Joseph F. Cummins, Carroll R. Carlson, Grenfall F. Harms, and D. Kirk Woodworth. *1973. Soil Conservation Service in cooperation with Minnesota Agricultural Experiment Station. 102 pp., illus.; maps.*

Ohio

Ashtabula County. By Neil E. Reeder, Victor L. Riemenschneider, and Paul W. Reese. *1973. Soil Conservation Service in cooperation with Ohio Department of Natural Resources (Division of Lands and Soil) and Ohio Agricultural Research and Development Center. 114 pp., illus.; maps.*

Hancock County. By Donald F. Rapparlie and Donald R. Urban. *1973. Soil Conservation Service in cooperation with Ohio Department of Natural Resources, Division of Lands and Soil, and Ohio Agricultural Research and Development Center. 94 pp., illus.; maps.*

Texas

Collingsworth County. By Harry F. McEwen, Frankie F. Wheeler, and Jack C. Williams. *1973. Soil Conservation Service in cooperation with Texas Agricultural Experiment Station. 56 pp., illus.; maps.*

Kent County. By Wayne E. Richardson and C. L. Girdner. *1973. Soil Conservation Service in cooperation with Texas Agricultural Experiment Station. 67 pp., illus.; maps.*

Midland County. By Harold W. Hyde, Nathaniel R. Conner, and Herbert R. Stoner. *1973. Soil Conservation Service in cooperation with Texas Agricultural Experiment Station. 43 pp., illus.; maps.*

Meetings

April

- 2–6 *Association of Interpretive Naturalists, Inc., Asilomar Beach, Calif.*
- 3–5 *Twelfth Annual Symposium on Engineering Geology and Soils Engineering, Boise, Idaho*
- 3–6 *National Rivers and Harbors Conference, Washington, D.C.*
- 7–11 *American Association for Community Development, New York, N.Y.*
- 8–12 *American Geophysical Union, Washington, D.C.*
- 9–11 *Identification and Transformation of Aquatic Pollutants Symposium, Athens, Ga.*
- 17–19 *International Livestock Environment Symposium, Lincoln, Nebr.*
- 21–24 *National Water Safety Congress, Charleston, W. Va.*
- 22–24 *Garden Club of America, Atlanta, Ga.*
- 22–24 *National Academy of Sciences, Washington, D.C.*
- 24–26 *Hardwood Plywood Manufacturers Association, New Orleans, La.*
- 26–28 *The Nature Conservancy, Washington, D.C.*
- 28–30 *Chamber of Commerce of the United States, Washington, D.C.*
- 28–May 1 *Association of American Geographers, Seattle, Wash.*

May

- 2–3 *California Fertilizer Conference, Anaheim, Calif.*
- 4–5 *Sierra Club, Los Angeles, Calif.*
- 5–8 *National Forest Products Association, Washington, D.C.*
- 6–9 *Southern Forestry Conference, Daytona, Fla.*
- 8–9 *Fourth Annual American Family Camping Congress, Chicago, Ill.*
- 11–16 *Fortieth Annual National Planning Conference, Chicago, Ill.*
- 12–16 *National Council of State Garden Clubs, Inc., Boston, Mass.*
- 19–26 *Soil Stewardship Week*
- 20–23 *American Institute of Architects, Washington, D.C.*
- 26–June 1 *General Federation of Women's Clubs, Minneapolis, Minn.*

June

- 2–5 *American Institute of Chemical Engineers, Pittsburgh, Pa.*
- 4–6 *International Exposition and Seminar on Water Resources Instrumentation, Chicago, Ill.*
- 16–19 *National Watershed Congress, Pittsburgh, Pa.*
- 16–21 *American Water Works Association, Boston, Mass.*
- 16–21 *Ecological Society of America, Tempe, Ariz.*
- 23–26 *American Society of Agricultural Engineers, Stillwater, Okla.*
- 23–27 *National Environmental Health Association Annual Educational Conference, Cincinnati, Ohio*
- 24–26 *American Plywood Association, Portland, Oreg.*
- 24–28 *American Society of Civil Engineers National Symposium on Water Quality Planning, Ithaca, N.Y.*
- 24–28 *American Society for Testing and Materials, Washington, D.C.*
- 26–30 *Association of Consulting Foresters, Ocean Shores, Wash.*
- 28–July 3 *National Education Association, Chicago, Ill.*
- 29–July 3 *American Seed Trade Association, Inc., St. Paul, Minn.*
- 30–July 2 *American Society of Farm Managers and Rural Appraisers, Inc., (Summer Meeting), Boise. Idaho*
- 30–July 4 *American Society of Landscape Architects, Bal Harbour, Fla.*

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Recon . . .

Drip cheap. Measured in terms of money, water is the cheapest of American commodities says Dr. Harold M. Stults, representative of USDA's Economic Research Service on Western U.S. Water Plan Study. "Dirt cheap" is a common expression. Yet Dr. Stults points out the price of dirt in the metropolis of Denver is about $1.50 a ton. Dirt delivered to the door is about $2 a ton. By contrast, water is delivered to Denver residences 24 hours every day of the year for about 14 cents per ton or 56 cents per 1,000 gallons. Even in central Arizona where water is often scarce, H_2O is delivered to Salt River Project farmers for about $0.0015 a ton or $0.000006 a gallon, Dr. Stults said.

Man from Mississippi. W. L. Heard, state conservationist for Mississippi and 40-year veteran of SCS, has been named "1973 Man of the Year in Service to Mississippi Agriculture" by the *Progressive Farmer* magazine. The citation reads in part: "The state suffered tremendous flood damage last year. However, as severe as it was, losses would have been even more catastrophic except for the flood prevention and watershed projects that Heard has been so instrumental in promoting and developing."

Arkansas tops in bait fish farming. Uniquely American, bait fish production is becoming quite an enterprise says the Fish Farming Experiment Station at Stuttgart, Arkansas. More than 50,000 acres are used for bait fish production. Arkansas leads the states with 29,091 acres. Minnesota comes in second with 12,900 acres. Mississippi has 1,740 acres; Louisiana, 1,500 acres plus; and Missouri, 1,200 acres. All types of bait fish—such as golden shiners, goldfish, carp, suckers, flatheads—are included in the Fish Farming Experiment Station tabulation.

Sixty acres equals a city. According to pollution authorities quoted in the *Wall Street Journal*, a 60-acre feedlot on a rainy day can produce runoff into neighboring streams equal to the raw sewage from a city the size of Galveston, Santa Barbara, or Miami Beach.

*U.S. GOVERNMENT PRINTING OFFICE: 1974 541-630/8 1-3